

REMARKS

In the Office Action identified above, the Examiner rejected claims 1-5 and objected to claims 1-3. By this amendment, Applicants amend claims 1-3, and add new claims 34-39. Therefore, claims 1-5 and 34-39 are pending.

Objections to the Title, Abstract, and Specification

The Examiner objected to the title of the invention for not being descriptive. In response, Applicants have amended the title to more clearly indicate the claimed invention. Applicants believe that the amendment of the title properly addresses the Examiner's objection and respectfully request that the objection to the title be withdrawn.

The Examiner objected to the abstract of the disclosure for being directed to a method of manufacture as opposed to a device. In response, Applicants have amended the abstract of the disclosure to be in conformation with the device of the present invention. Accordingly Applicants respectfully request that the objection to the abstract be withdrawn.

The Examiner objected to the specification for grammatical errors. Applicants have amended the specification to address and correct these informalities.

Additionally, the Examiner objected to the specification for failing to provide a proper antecedent basis for the claimed subject matter in claims 3-5. In response, Applicants have amended claim 3, and have added Figure 26 to conform the Figures to the specification.. Accordingly Applicants request that the objections to the specification be withdrawn.

Objections to the Drawings

The Examiner objected to the drawings for failing to show every element of the claim. In response, Applicants have amended claim 3, and further added Figure 26 to conform to

the specification. Accordingly, Applicants respectfully request the objections to the drawings be withdrawn

Furthermore, on page 2 of the Office Action, the Examiner objected to Figures 20A, 22 and 23 indicating that these figures should be labeled “Prior Art.” In response, Applicants, amend Figures 20A, 22 and 23 to include the label “Prior Art,” and therefore deem the Examiner’s objection to the drawings overcome. Accordingly, Applicants file herewith two (2) sheets of drawings labeled “Replacement Drawings,” containing Figures 20A-25.

Applicants request that the drawings be made of official record in the above-identified patent application. If the drawings for any reason are not in full compliance with the pertinent statutes and regulations, please advise the undersigned.

Rejection Under 35 U.S.C. § 102(b) of Claims 1-2

The Examiner rejected claims 1-2 under 35 U.S.C. § 102(b) as being clearly anticipated by U.S. Patent no. 5,306,940 to Yamazaki (“Yamazaki”). Applicants respectfully traverse this rejection.

Claims 1 and 2, as amended, recite a combination including, *inter alia*, “a trench” and “an element isolating insulating film”. Yamazaki fails to teach a combination including the limitation of “a trench” and “an element isolating insulating film”. Since Yamazaki fails to teach every element of the claim, it cannot anticipate claims 1 and 2.

Yamazaki and the present invention utilize different isolation methods. The isolation method, as claimed in claims 1 and 2 of the present application, is shallow trench isolation (STI), whereas the isolation of Yamazaki is local oxidation of silicon (LOCOS). In other words, neither of the “trench” and “element isolating insulating film provided in the trench” disclosed in claims 1 and 2, is disclosed or suggested in Yamazaki.

Rejection under 35 U.S.C. § 102(b) of claims 3 and 5

The Examiner rejected claims 3 and 5 under 35 U.S.C. § 102(b) as being clearly anticipated by Japanese Document 4-37048 to Ito (“Ito”). Applicants respectfully traverse this rejection.

Claim 3, as amended, recites a combination including, *inter alia*, “said semiconductor layer being an epitaxial layer” and “an element isolating insulating film”. Ito fails to teach a combination including the limitation of “said semiconductor layer being an epitaxial layer” and “an element isolating insulating film”. Since Ito fails to teach every element of the claim it cannot anticipate claim 3, nor claim 5, which depends on claim 3.

The present invention of Claims 3 and 5 differs from Ito at least as follows: A first difference lies in the semiconductor layers which the present invention and Ito show. The semiconductor layer recited in claim 3 is an epitaxial layer, whereas the semiconductor layer of Ito is a silicon substrate. In other words, the feature “said semiconductor layer being an epitaxial layer” is not disclosed or suggested in Ito.

A second difference lies in the isolation methods which the present invention and Ito show. The isolation shown in claims 3 and 5 of the present application is STI (shallow trench isolation), where the isolation of Ito is merely trench isolation. In other words, the “element isolating insulating film provided in the trench” disclosed in claims 3 and 5 is not disclosed or suggested in Ito.

In FIG. 1 of Ito, the insulating film 6a at the bottom of the trench may look like an isolating insulating film, but this is not the case. As can be seen from FIG. 3B of Ito, insulating film 6a is formed simultaneously with a gate insulating film 6 (that is, the insulating film 6a is formed in the thermal oxidation step). Insulating film 6a may be thicker than gate insulating film

6 because a channel stopper 4 is located in the bottom of the trench. However, insulating film 6a is not thick enough to function as an element isolating insulating film. Furthermore, the insulating film 10 shown in FIG. 1 of Ito is an interlayer insulation film. It is not an element isolating insulating film.

Rejection under U.S.C. § 103(a) of claim 4

The Examiner rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Ito. Applicants respectfully traverse this rejection.

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), each of three requirements must be met. First, the references, taken alone or in combination, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of these requirements must “be found in the prior art, and not be based on applicant’s disclosure.” M.P.E.P. § 2143 (8th ed. 2001). As discussed above, Ito fails to teach every element of claim 3, from which claim 4 depends. Since Ito fails to teach or suggest every element, a *prima facie* case of obviousness has not been made. Thus, Applicants request that the rejection of claim 4 under 35 U.S.C. § 103(a) to be withdrawn.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: September 7, 2004

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Attachments: Replacement Drawings Figures 20A-25, New Figure 26

AMENDMENTS TO THE DRAWINGS

The attached replacement drawings have added the label “Prior Art” to Figures 20A, 22, and 23.

The attached new sheet, Figure 26 illustrates a semiconductor device structure wherein the step amount is negative. Support for this figure can be found in the specification at, for example, page 58 lines 22-25.

Attachments: Replacement Drawings Figures 20A-25, and New Drawing Figure 26